# CHEMICAL ENGINERING

ALFRED S. REED PUBLISHER NICHOLAS C. CHOPEY

Editor-in-Chief

In August 1946 Chemical & Metallurgical Engineering was renamed Chemical Engineering. Chemical & Metallurgical Engineering was the successor to Metallurgical & Chemical Engineering, which, in turn, was a consolidation of Electro-Chemical & Metallurgical Industry and Iron & Steel Magazine. The magazine was originally founded as Electrochemical Industry.

McGRAW-HILL INC., NEW YORK CITY

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Fermentation—Fermentec to start up cheese- whey-to-ethanol plant at Manteca, Calif.	40	Solve-flashing-fluid critical-flow problems.		53 inventory Aug 23 Oil equivalent to No. 6 fuel grade produced	98
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Fertilizer story—rich one year, poor the next. Jay Chowdhury & Nicholas P.		Kurmarao (graph) (P.N.) Feb 8 Surge control for multistage centrifugal	132	Peat upgrading to dry, pelletized fuel (C)	10
Chopey (tables) (N) Apr 5  "Modified" phosphate fertilizer promoted	45	compressors. David F. Baker (graphs, diagrams) May 31	117	Petroleum see Petroleum Pyrolysis process converts waste polymers	
at IFDC for use in acidic soils (C) Nov 15	9	Flowmeters—Flowmeters: ISA/82Oct 4 Fluidization—Fluidized-bed incineration of	*67	to fuel oils. Jeet Bhatia & Robert A. Rossi (flow chart, table) Oct 4	*58
TVA to produce high-nitrogen fertilizer	9	hazardous wastes continues to attract attention (C)	18	Reusing energy lowers fuel needs of distil- lation towers. Ram N.S. Rathore (table,	
(C)	,	Fluids	10	flowcharts)June 14	*155
Fibers CE construction alert (R) May 31-131,	-	Jet mixing design and application. Prakash R. Bathija (charts, diagrams, table)		Rocket fuel: New, highly reactive rocket fuel may be in the works at the U. of	
China market sours for U.S. fibers (N)	78	Process Dynamics CE Refresher see CE	89	Florida (C) Aug 9 Scrap tires, refuse: plant's boiler fuel (N)	19
Manmade fibers to surpass natural ones:	43	Refresher Supercritical fluids are getting a close look		Shale oil see Shale Oil	53
new market study by Predicasts (N) Sept 20	31	at Air Products and Chemical, Inc. (C)	18	Short-term energy consumption should rise slightly (N) May 3	23
NBS eyes new optical-fiber thermometer	23	System is designed for critical-fluid extrac-		SRC-I project see Coal Synthetic fuels	
(N) Oct 18 New processes and technology alert (R)		tions (flowchart) Jan 25 Fluorination—Air Products and Chemicals'	. 53	· CE construction alert (R) May 31-133,	02
52 inventory Feb 8 53 inventory Aug 23	109 101	new tetrafluoromethane plant will feature direct fluorination technology (C)		Consider these criteria when selecting a	82
Synthetic fibers: Rise in demand seen (N)Aug 23	49	Flyash May 17	19	synfuel process. Harry W. Parker June 14	173
UC opens commercial pitch-based fiber plant (N)	23	Flyash for America's farms (N) Feb 22 Flyash from coalburning: Tomorrow's	*25	Kentucky's Governor continues the push for synfuel development in the state	
U.SFrench venture to make graphite fibers (N)	23	source of metals? (C)	18	(C) Jan 25-20, (N) May 17 New processes and technology alert (R)	31
Filters & Filtration		way to collect flyash from the stack (C)	18	52 inventory Feb 8 53 inventory Aug 23	112 103
Batch pressure filtration—report (diagrams, tables, graphs, flow charts) (R)	***	Food Apr 5	16	Oak Ridge process tames synfuels'	
Selecting batch pressure filters. Douglas	*46	EDI process: will irradiation displace the use of chemical fumigants for food disin-		wastewater discharge (N) Sept 6 Playing the synfuels game without rules	29
N. Moir July 26 Designing batch pressure filters. Thane	47	fection? (C) Jan 25 Immobilization routes—they're not standing	18	(N) Jan 25 Synfuel products will get utility test (N)	25
R. Brown July 26 Current costs of process equipment—report	58	still. Nicholas Basta (chart, diagram) (N)	*55	Tennessee Synfuels coal-to-gasoline proj-	31
Richard S. Hall & others (graphs) (R)	80	Irradiated foods-hungry for a U.S. come-	55	ect; Cities Service withdraws (C) Mar 22	20
—Correction	5	back. Jay Chowdhury (table) (N)	*45	Westinghouse announces new combus-	20
CycloSpray: Clarifying filter solves solids buildup problem (diagram) Feb 8	53	Forecasting Forecasting demand for chemicals via econ-		tion-turbine blades, for use in synfuels consumption, are ready (C) May 3	19
Israeli researchers hope to market new sepa- ration/filtration technology by 1983 (C)		ometric models. John B. Malloy & Don- ald M. Tacke (chart) Feb 22	101	Synthetic Fuels Corp. Growing more aggressive (C) June 14	20
Leaf tests can establish optimum rotary-vac-	17	ald M. Tacke (chart) Feb 22 Methods for forecasting CPI technological change. Joseph P. Martino (graphs, flow-		Keeps pushing synfuel-plant incentives (C) Oct 4	20
uum-filter operation. Dudley W. Cheape, Jr. (tables, graphs, diagrams)June 14	141	sheets, tables) Jan 11 Formaldehyde	97	A new solicitation for synfuel projects (N)	31
Stainless-steel filters may aid in heat recovery from dust-laden streams (C)	171	Inhalation study asserts formaldehyde is	22	Project funding to be speeded up (C)	12
ery from dust-laden streams (C)	18	safe (N)	23	Synfuels are in danger as plant costs	12

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escalate. Ron Grover (N) May 3	43	grams)	*64	James H. Mannon & Philip M. Kohn	
Synfuels Corp. tries new ways to attract industry. Ron Grover (N) Nov 1	33	Sasol II: Westinghouse will install its coal- gasification system (C) Oct 18	17	Bayer/Bertrams process gives new life to	*54
The U.S. Synfuels Corp. comes to life	33	SRC-I project see Coal	17	contaminated sulfuric acid. Hans Ru-	
again. Ron Grover (N) (table)		Texaco-West German coal-gasification re-		dolph Kueng & Peter Reimann (dia-	
SNG see Natural Gas	*51	search deal is sealed (N) Mar 8	23	grams) Apr 19	72
Fuel Cells		Toxiflex coal-gasification process also gets rid of hazardous chemical wastes (C)		Beer with less alcohol, fewer calories but same flavor (N)Jan 25	> 23
Methane-powered fuel cells will be tested at		Oct 18	19	Caloric develops a low-NO <sub>x</sub> recycling fuel	. 45
locations across the U.S. (C) Feb 22	18	Gasoline		burner (C) Oct 4	17
U.S. agencies expand fuel-cell development work (C)July 12	18	Ethanol-to-gasoline reaction catalyzed by		Fried. Krupp GmbH acquires U.S. engi-	21
Fumigants—ETI process: will irradiation dis-	10	zeolites looks promising (C)Aug 23 Gasohol	17	neering companies (N) Mar 22 Kuwait seems to be the behind-the-scenes	31
place the use of chemical fumigants for food		Guarded prognosis for alcohol fuel. Raúl		buyer of much Hoechst AG stocks (C)	
disinfection? (C) Jan 25	18	Remírez & others (N) Nov 29	*24	May 31	19
Coal-fired-heater makers stress energy effi-		Sales are climbing in the U.S. (N) Sept 6	29	Uncertainty still clouds the foreign pur- chases of Hoechst stock (C). June 28	18
ciency. James Branscome (flow chart)		Grace shrinks proposed Baskett, Ky.		Hoechst confirms Kuwaitis bought stock	10
(N) Oct 4	49	synfuels plant (C)Dec 13	18	(N) Nov 1	23
Coal/oil mixtures eyed as furnace fuel (N)May 17	*33	Lead-in-gas: EPA proposes stricter limits on	20	Texaco-West German coal-gasification re- search deal is sealed (N)	23
Optical probe to boost the efficiency of flu-	33	lead in gasoline (C)Sept 6 Lead-in-gas: EPA proposing that small re-	20	West German hydrogen-from-nuclear-heat	43
idized-bed furnaces (C) July 12	18	finers be exempted from a lead-in-gas		project EVA/ADAM II: tests to begin	
Phelps Dodge to modify its copper smelter		limit (N)	23	(C) Feb 22	19
from reverberatory furnaces to "oxygen sprinkling" (C)Feb 8	18	Lead-in-gas: EPA's final rule on leaded gas- oline will eventually eliminate all exemp-		West German plant to use morpholine ex- tractive distillation (C)Apr 19	17
	-	tions (C) Nov 15	20	West German plant uses, recycled enzymes	
		New Zealand: natural-gas-to-gasoline plant	22	for L-amino acid production (C). Apr 5	17
G		gets green light (N)	23	West Germany: BASF shuts down world's first ammonia plant (C) Sept 6	17
		ect: Cities Service withdraws (C)		West Germany: Degussa is pushing hydro-	1,
Gallium—Hazen process may recover gallium			20	gen peroxide for NO <sub>x</sub> scrubbing (C)	
and germanium from a depleted copper mine (C)July 26	9	Generators		Glass Sept 20	18
Gas	,	Cogeneration: Industry demand sparks cogeneration-unit sales. Raúl Remírez	,	Airco saves energy in glassmaking by firing	
Accounting for dissolved gases in pump		(map) (N)	49	with some pure oxygen (N) Nov 1	19
design. Mao J. Tsai (diagrams, graphs,	65	Cogeneration: What's new in cogeneration.	26	Metallic glass is to be studied for electro-	17
tables) July 26 Designing gas-sparged vessels for mass	0.5	Gerald Parkinson (N)	20	motor applications (C) May 17 Glucose—Power Alcohol demonstrates new	1,
Designing gas-sparged vessels for mass transfer. J.N. Tilton & T.W.F. Russell		from a gas-pipeline compressor (C)		catalytic hydrolysis process for converting	
(charts, diagrams)	61		19	cellulose to glucose (C) Oct 18 Gopher Weed—U. of Arizona researchers	17
Vosseller (nomograph) (P.N.)Apr 5	138	Enhanced oil recovery gets a lift from rocket method (N) July 12	39	knock the fuel value of gopher weed, but	
Estimating costs of air-pollution control systems. William M. Vatavuk & Robert B.		MHD research programs threatened by lack	-	then start a search for chemical-feedstock	
tems. William M. Vatavuk & Robert B.		of funds. Leonard J. Kaplan (table, dia-		crops (C)	18
Neveril (charts, flow diagrams, tables) Part XIII: Costs of gas absorbers. Oct 4	*135	gram) (N)	*55	Grain—Grain dust possible ethanol feedstock (N)July 12	41
Feeding liquefied gas to a gas-liquid reac-	133	results of downhole steam generation for		Graphite	**
tion. Ehud Finkelstein (flow chart)		heavy-oil recovery (C)July 12	17	Airco, Inc. building Ridgeville, S.C. plant	22
(P.N.)	132	Genetic Engineering Battelle seeking waste-treating microbe		to make graphite electrodes (N) . Feb 8 U.SFrench venture to make graphite fibers	23
specific-heat ratios for hydrocarbon		(C) June 14	19	(N) Jan 25	23
gases. Ronald P. Lapina (charts, table)	0.5	Congress to weigh pros and cons on genetic		Great Britain	
Program predicts pressure drop for gas flow	95	tests. Vicky Cahan (N) Dec 27 Federal officials consider forming a new	27	Bestobell develops ultrasonic liquid-level detecting for tanker-ship holds (C)	
across an orifice meter. Frank A. Ste-		genetic-engineering commission (C)		June 14	19
phens (charts, tables, diagrams)			12	Biosynthetic human insulia (BHI) will be	
Programs for predicting properties with the	69	Genentech plans facility for other geneti-	19	the first product of Dista Product's facil- ity (C)	19
TI-59 calculator see Calculator Pro-		cally manipulated products (C) Apr 19 Genentech teams with Mitsubishi to build a	19	Biotechnology spending boosted (C)	
grams		plant in Japan to manufacture human		Dec 13	18
Sizing orifices for flow of gases and vapors. Patrick C. Ting & Mileta Mikasinovic		serum albumin (N) June 14	55	British Petroleum researchers are at work on	
(chart, diagram, table)	*83	Genetically engineered bovine growth hor- mone raises milk production by 12% (C)		a method to plug oil-pipeline leaks (C)	19
Unconfined-vapor-cloud explosions. V.C.		July 12	18	ICI develops a photogrammetric technique	
Marshall (diagram, tables, chart)	*149	Genetically-engineered "human insulin" is		for producing engineering drawings (C)	1"
Gas See also specific gas	149	on the verge of receiving approval from FDA (C)	20	Mar 8 ICI's '"biopolymer'' seeks government funding (C)	17
Gasification		Great Britain: Biosynthetic human insulin		funding (C)	19
Allis-Chalmers' first-of-a-kind Kiln-Gas		(BHI) will be the first product of Dista	10	ICI's combined distillation-centrifugation	
coal-gasification plant nears completion (C)Oct 18	18	Product's facility (C) Apr 19 Socal pulls out of a fructose-via-enzyme	19	process (C) Dec 13 Liquefaction plant postponed after BP an-	1
Belgium: in situ coal-gasification project		venture with Cetus Corp. (C) June 14	19	nounces its withdrawal (C) May 21	17
starts up (N)	23	Stanford genetic-engineering licensing in		Natural gas: "real alternative" to the flaring	
Biomass-to-methanol gasifier moves toward the marketplace (C)	9	doubt as the U.S. Patent Office issues a "tentative rejection" of application (C)		of oilfield-associated gas (C) Apr 5 U.K. seeks closer ties among technical	19
Colorado Chokecherry coal-to-methanol	-	Aug 23	19	agencies. James H. Mannon (N)	
project gets switched to hydrogen produc-		Synthetic production of the milk-curdling		Jan 25	49
tion (C)	17	enzyme rennin steps closer to actuality	10		
funding (C)July 26	11	with Dow breakthrough (C) Feb 22 U. of Calif. gene-splicing may simplify	-18		
funding (C)July 26 Exxon U.S.A. "defers" its planned con-		drug purification (C) Dec 13	19	H	
struction of a lignite gasification project	20	Geothermal		-	
(C) Feb 8 French wood gasification processes are making steady headway (C) Mar 22	20	Geothermal energy heats up. Gerald Parkinson (N)	*59	Health	
making steady headway (C) Mar 22	19	Geothermally driven plant for the produc-	3,	The ABCs of occupational skin disease.	
Great Plains Coal Gasification Project		tion of high-fructose corn syrup (C)		Kenneth J. McNaughton (chart) Part I:	1.44
Pacific Lighting Corp. joins (N) June 14	55	Hitex, a Rockcor explosive, enhances geo-	19	Mar 22-147, Part II:	14
Proceeding on schedule (C) Sept 6	17	thermal production (N) Mar 22	31	Capital spending: employee safety-and-	
Lignite-to-methanol plant is 23% built		Germanium-Hazen process may recover gal-		health spending (C)June 14	1
(C) Oct 18 —Correction Nov 29	18	lium and germanium from a depleted copper	9	CPI cut health outlays, boost abatement spending. Leonard J. Kaplan (tables)	
Methane from coal aided by use of potas-	3	mine (C)July 26 Germany	,	(N)July 12	5
sium catalyst: Exxon's CCG process.		ACHEMA '82: A preview of chemical		(N)	
Leonard J. Kaplan (flow chart, dia-		process equipment and developments.		there a health risk? (N) Oct 4	5

Formaldehyde: Inhalation study asserts		Herbicides	- 1	Raúl Remírez (table) (N) Mar 22	*49
formaldehyde is safe (N) May 3	23	Federal Insecticide, Fungicide and Rodenti-	.	Indiana researchers guarantee 50% less fuel	
Health See also Air Pollution, Environment;		cide Act: Battle lines are being drawn in	20	use for sludge incineration (C). July 25	9
Labor; Safety; Water Pollution Heat		the Senate over FIFRA (C) Aug 23 FOIA: EPA leaked Monsanto secret formula	20	PCB-burn aboard the ship Vulcanus is suc-	17
Calculating heat loss or gain by an insulated		for herbicide Roundup (C)Oct 4	20	cessfully completed. (C) Jan 25 Pyro-Magnetics mobile hazardous-waste	17
pipe. Frank S. Schroder (flowsheet, ta-		Starch used as a slow-release herbicide		incinerator features 4.600°F operating	
bles) Jan 25	111	agent (N) June 14	55	temperature (C) June 28	17
bles) Jan 25 "Chemical heat pump" technology: Rocket		Hormones—Genetically engineered bovine		Two more incineration ships may be in op-	
Research hopes for commercial produc-		growth hormone raises milk production by		eration by 1984 (C) Jan 25	18
tion (C)Sept 6	19	12% (C) July 12	18	Information Retrieval	
Consider direct steam injection for heating		Hydraulics—Centrifugal pumps and system		Get valuable information free from Wash-	90
liquids. Alan E. Pick (diagrams)	97	hydraulics—report. Igor J. Karassik (dia-	*84	ington. Matthew Lesko (tables). Feb 22	89
Estimate waste-gas heat savings. George V.	87	gram, charts, graphs, tables) (R) Oct 4 Hydrocarbons—How to estimate compressi-	-84	—Correction May 3 Recording ambient-air-quality monitoring	5
Vosseller (nomograph) (P.N.)Apr 5	138	bility factors and specific-heat ratios for		data. Prabhu Dayal (data sheets)	
Estimating pipe heat-tracing costs. Joseph	130	hydrocarbon gases. Ronald P. Lapina		Jan 25	101
T. Lonsdale & Jerry E. Mundy (tables,	1	(charts, table) Feb 8	95	SRI International has a method to analyze	-
diagrams) Nov 29	89	Hydrofluoric Acid-Phillips Petroleum un-		the scarcity of strategic minerals (C)	
How to estimate compressibility factors and		veils a new process, called STAR, for iso-		Feb 8	17
specific-heat ratios for hydrocarbon	1	butane dehydrogenation (C) Feb 8	17	UCSL Trade Statistics System: New System	
gases. Ronald P. Lapina (charts, table)		Hydrogen		offers data on world chemical trade.	
Feb 8	95	ACS symposium focuses on hydrogen. Ger-		James H. Mannon (table) (N) Jan 25	41
In-situ radio-frequency heating: New ways		ald Parkinson (N)	51	Injection—Consider direct steam injection for	
to process oil shale. Gerald Parkinson	27	Canada: Hydrogen developments snare	25	heating liquids. Alan E. Pick (diagrams)	07
(diagrams) (N) Feb 22 Nuclear heat: West German hydrogen-	37	spotlight (chart, table) (N)Apr 5 Colorado Chokecherry coal-to-methanol	25	Inorganic Chemicals	87
Nuclear heat: West German nydrogen-		project gets switched to hydrogen produc-		CE construction alert (R) May 31-123,	
from-nuclear-heat project EVA/ADAM	19	tion (C) June 28	17	Nov 1	73
II: tests to begin (C) Feb 22 Program, "FLAMTE", calculates flame temperature. Carl A. Vancini (chart, flow	17	Coal-to-hydrogen project is rejected for	1,	New processes and technology alert (R)	15
temperature, Carl A. Vancini (chart, flow	1	funding (C)July 26	11	52 inventory Feb 8	105
sheet, tables) Mar 22	133	Fourth World Hydrogen Conference: Hy-		—Letter	5
Solar ponds collect sun's heat. Robert K.		drogen economy still in the future. Ger-		53 inventory Aug 23	98
Multer	87	ald Parkinson (N)July 26	17	Insecticides	
Stainless-steel filters may aid in heat recov-		Low-cost hydrogen for process plants		Federal Insecticide, Fungicide and Rodenti-	
ery from dust-laden streams (C)		(charts) Aug 9	37	cide Act	
Aug 23	18	Metal hybrides selectively remove H <sub>2</sub> from		A rhubarb brews over pesticide rules (N)	
Heat Exchangers	***	gas streams. Leonard J. Kaplan (table)	+24	Pottle lines are being denum in the Senate	25
ACHEMA 82: preview May 17	*55	Progress on the hydrogen front (diogram)	*34	Battle lines are being drawn in the Senate over FIFRA (C)	20
Ceramics make a try for tough heat-recov- ery jobs. Gerald Parkinson (diagram)		Progress on the hydrogen front (diagram)	17	Process uses liquid CO <sub>2</sub> for botanical ex-	20
(N)Apr 19	61	(N)	17	tractions. Marc Sims (flow diagram)	
Compressor intercoolers and aftercoolers:	01	silicon in the electrode may pave the way		Jan 25	50
Predicting off-performance. Peter Y.		for cheap, efficient production of hydro-		Instruments	-
Burke (diagrams)Sept 20	107	gen from water (C) Nov 1	17	ACHEMA '82: preview May 17	*56
Current costs of process equipment—report.		Sun-powered water-splitting progress (N)		Early warning system for toxic waste spills	
Richard S. Hall & others (graphs) (R)		Oct 18	23	July 26	*35
Apr 5	80	West German hydrogen-from-nuclear-heat		Electronics, flowmeters: a winning combi-	
—Correction June 14	5	project EVA/ADAM II: tests to begin		nation. Jay Chowdhury (charts & table)	20
Designing a helical-coil heat exchanger.		(C) Feb 22	19	(N) June 28	39
Ramachandra K. Patil & others (diagrams, chart, table) Dec 13	85	Hydrogen Fluoride—Australians develop a		EPA and industry confer to set up a waste-	
Ease thermal-stress ills. Ken Brown (dia-	0.5	new laser technique for hydrogen fluoride detection (C)	17	water-instrument testing service (C) June 28	20
grams) (P.N.) Feb 8	131	Hydrogen Peroxide—West Germany's De-	**	Instrument-maintenance pointers. S. Reg-	
Estimate costs of heat exchangers and stor-	151	gussa is pushing hydrogen peroxide for NO <sub>x</sub>		havachari (P.N.) Oct 18	134
age tanks via correlations. Armando B.		scrubbing (C)Sept 20	18	ISA/82: International Instrumentation-Auto-	
Corripio & others (tables) Jan 25	125	Hydrogenation—United Catalysts announces		mation Conference and Exhibition	
Heat-exchanger tube-to-tubesheet connec-		first-of-its-kind catalyst for Claus tail-gas		Oct 4	63
tions. Stanley Yokell (diagrams). Feb 8	*78	units (C) Nov 29	11	Is your control system ready to start up?—	
Increase flow to cut fouling. Ralph A.	115	Hydrolysis		report. Frederic A. Meier (tables, dia-	474
Crozier, Jr. (table) (P.N.)Mar 8	115	Formic acid from CO-containing gases.		grams, data sheets) (R) Feb 22	*76
Heat Transfer Assessing heat transfer in process-vessel		Leonard J. Kaplan (flow diagrams, ta-	71	Optical probe to boost the efficiency of flu- idized-bed furnaces (C)July 12	18
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graphs) Sept 20	95	hydrolysis process for converting cellu-		radio-frequency interference (RFI) (C)	
Consider direct steam injection for heating		lose to glucose (C)Oct 18	17		11
liquids. Alan E. Pick (diagrams)				Insulation	
June 28	87			Calculating heat loss or gain by an insulated	
Estimate heat-tracing requirements for pipe-		I		pipe. Frank S. Schroder (flowsheet, ta-	
lines. W. Wayne Blackwell (diagrams,				bles) Jan 25	11
tables)Sept 6	115	*		Effects of insulation on refractory struc-	
How efficient is the circular tube in heat		Imports		tures. Gary J. Nagl (diagrams, tables, graph)	12
transfer? P.S.V. Kurmarao (graphs)	122	Petroleum: Domestic tilt for U.S. petroleum	23	graph)Oct 18 Insulation without economics. M. McChes-	12
(P.N.) Aug 23 Predict spray-nozzle performance. K.N. Murty (charts) (P.N.) Mar 8	122	supply (N) Jan 25 UCSL Trade Statistics System: New system	43	ney & P. McChesney (tables & dia-	
Murty (charts) (P N ) Mar 8	118	offers data on world chemical trade.		grams) May 3	*7
Predict storage-tank heat transfer precisely.	****	James H. Mannon (N) (table) Jan 25	42	grams)	
Jimmy D. Kumana & Samir P. Kothari		U.S. considers tariff on imported oil (N)		U.S. space shuttle Columbia will be carry-	
(diagram, chart, tables) Mar 22	127	Apr 19	39	ing new insulation: AFRSI (C) Mar 22	1
-Corrections June 14-5, Nov 1	5	Incineration		Insulin	
Process Dynamics—CE Refresher see CE		At-Sea Incineration gains U.S. help in		Genetically-engineered "human insulin" is	
Refresher		building incineration ships (C). May 17	18	on the verge of receiving approval from	2
Reusing energy lowers fuel needs of distil- lation towers. Ram N.S. Rathore (table,		EPA issues final hazardous-waste incinera-	20	EPA (C)	2
flowcharts)	*155	tion rules (C) July 13 EPA unveils a mobile waste incinerator	20	(BHI) will be the first product of Dista	
Solving problems of varying heat-transfer	155	(C)	18	Product's facility (C) Apr 10	1
areas in batch processes. Maurizio Marzi		Estimating cost of air-pollution control sys-	10	Product's facility (C) Apr 19 Intersociety Energy Conversion Engineering Conference (17th)—Meeting focuses on	
(diagram, tables, graphs) May 17	101	tems. William M. Vatavuk & Robert B.		Conference (17th)—Meeting focuses on	
Vertical vs. horizontal condensers. K.N.	.01	Neveril (charts, flow diagram, tables)		energy technologies. Gerald Parkinson &	
Murty (chart) (P.N.) May 31	152	Part XII: Estimate the size and cost of		Rául Remírez (table, diagram) (N)	
Heaters		incinerators July 12	*129	Sept 20	5
Coal-fired-heater makers stress energy effi-		Correction	5	Interviews—Come through that job interview	
ciency. James Branscome (flow chart)	40	Fluidized-bed incineration of hazardous		a winner. John H. Brinckerhoff July 26	47
(N) Oct 4 Thermal balance for direct-fired heaters.	49	wastes continues to attract attention (C)	18	Inventions—What can be patented? Donald G.	40
V.K. Arora (graphs) (P.N.) Nov 15	152	Incineration at sea—are they now in favor?	18	Daus	-
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employees and retirees who hold 50 or more patents (N)Oct 18	*25	L	1	DDT scare in Alabama: Triana suing Olin Corp. Inge KummantJuly 12	*63
Ion Exchangers—Preventing fouling of ion-	-23		1	Dow wins surveillance case against EPA	-03
exchange resins. Paul Pelosi & John Mc-		Labeling—Hazardous-material labeling dis-	23	(N) May 17	31
Carthy I. Aug 9-75, II Sept 6 Ionization—"Resonance ionization spectros-	125	pute continues Feb 22	23	Energy see Energy Engineering groups push Manpower Act	
copy' may ease separation of closely re-		The ABCs of occupational skin disease.		(N) May 31	65
copy' may ease separation of closely re- lated chemical species (C) Mar 8	20	Kenneth J. McNaughton (chart) Part I:	140	Environmental see Air Pollution; Environ-	
Iron—Solidification methods profit from space	*45	Mar 22-147, Part II: Apr 19 CPI cut health outlays, boost abatement	149	ment; Waste Disposal; Water Pollu- tion; Water Supply	
tests. Jeff Trewhitt (N) Feb 22 Irradiation	43	spending. Leonard J. Kaplan (tables)		FOIA: EPA leaked Monsanto secret formula	
ETI process: will irradiation displace the use		(N)July 12	59	for herbicide Roundup (C) Oct 4	20
of chemical fumigants for food disinfec-	10	Exxon's refinery in Baton Rouge, La.: Is there a health risk? (N) Oct 4	53	Federal Insecticide, Fungicide and Rodenti-	
tion? (C)	18	Lock-out/tag-out standard protects workers	33	cide Act A rhubarb brews over pesticide rules (N)	
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from a depleted copper mine by Hazen		(N)Jan 11	53	gram, tables)	*8
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Phelps Dodge to modify its copper smelter from reverberatory furnaces to "oxygen		cation of landfill- or sewage-generated gas (C)	17	paper at AIChE conference (C) Mar 8	17
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SO <sub>2</sub> /air mixture is proposed for cyanide		neering has started (C) Nov 1	19	Sieving air to yield nitrogen (chart)	
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wastes: Inco Metals process (C). Aug 9 Metals	19	being flared from digesters at its sewage treatment plants—and convert it to meth-		Molybdenum—Molybdate inhibitors for prob-	
Barite unit: USBM's BOM lab develops		anol to power city vehicles (N) Aug 9	23	lem cooling waters. D.R. Robitaille (tables, charts) Oct 4	13
improved media for metal separation (C)		TVA awards Kaiser Engineers contract for		Motivation—How to motivate the individual	10.
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Flyash from coalburning: Tomorrow's	10	L-Methionine—West German plant uses recy-		Metallic glass is to be studied for electro-	
source of metals? (C)	18	cled enzymes for L-amino acid production (C)	17	motor applications (C) May 17 Preventing motor burnout. D.B. Gajjar & S.	1
International Mining Show: Metals and oil shale are meat of meeting (N)		Methylation—Feeding liquefied gas to a gas-	.,	Michael Antony (P.N.) (tables)	
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Tin Research Institute's tin-plating process		Mexico		money problems (C) May 3	2
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Sandia solar unit will use molten salt me-	*41	shale are meat of meeting (N) Nov 29 Intersociety Energy Conversion Engineering	28	Liquid-sodium solar receiver (N)July 12 Molten salts considered for solar unit (N)	39
dium (N)July 26	27	Conference (17th): Meeting focuses on			*41
Sampling—Boliden's automated process sam-	18	energy technologies. Gerald Parkinson & Raúl Remírez (table, diagram) (N)		Sandia solar unit will use molten salt me-	27
pler features a robotic arm (C) Apr 5 Scheduling—How to motivate the individual	10	Sept 20	51	dium (N)July 26 Solar-energy-powered water electrolysis:	27
and the team. Walter E. Breisch (charts)		Kentucky: O'Daniel leasing-registration bill		silicon in the electrode may pave the way	
Scrubbers Aug 9	69	(N)Feb 8 Kentucky: Tarco scales up tar-sands plant	25	for cheap, efficient production of hydro-	17
High-sulfur coal tests demonstrate the suc-		(N) Feb 22	49	gen from water (C)	17
cessful operation of dry scrubbing (C)	10	Kentucky encourages synfuels development	21	Multer	87
Scrubber trims wastewater discharge	18	(N) May 17 Kentucky oil-shale venture weighed by Aus-	31	Solar technology sought—Letter Nov 15 Sun-powered water-splitting progress (N)	5
(chart) Apr 5	*53	tralians (N) Dec 13	27	Oct 18	23
Scrubbing needn't be a chore anymore	*83	Kentucky tar-sands projects are making	10	Solidification	
Venturi scrubber scaleup. G.C. Lammers	.03	steady headway (C) June 28 Kentucky will offer interested private-	19	GTI to conduct alloy-solidification tests on future space-shuttle flights (N) Apr 5	23
(diagram, table) (P.N.) July 26	80	industry companies an updated proposal		Solidification methods profit from space	
"Waste" chemical helps keep stacks clean (N)	55	for developing oil shale within the state (N) June 14	55	tests. Jeff Trewhitt (N) Feb 22 Solids	*45
West Germany's Degussa is pushing hydro-	33	Mobil consortium proposed to sponsor a test	33	Batch pressure filtration—report (diagrams,	
gen peroxide for NO <sub>x</sub> scrubbing (C)	10	facility for oil shale (C) Aug 9	18	tables, graphs, flow charts) (R)	
Sealants Sept 20	18	Mutated organisms are found to be useful in refining tar sands (C)Oct 4	18	Selecting batch pressure filters. Douglas	*46
Adhesives and sealants make maintenance		New ways to process oil shale. Gerald Par-		N. Moir July 26	47
easier. Dale Barsness Jan 25	*129	kinson (diagrams) (N) Feb 22	37	Designing batch pressure filters. Thane	
Silicones: Uses of silicones in process plants. Harry M. Schiefer & Peter G.		Paraho Development Corp. downsizes its oilshale project (C)	20	R. Brown July 26 Predicting solid-liquid equilibrium data	58
Pape (tables) Feb 8	*123	Rio Blanco oil-shale project is put on hold		from vapor-liquid data. Robert F. Muir &	
Separation Barite unit: USBM's BOM lab develops		(C)July 26 Rio Blanco's Piceance Basin, in-situ shale	11	Colin S. Howatt III (charts) Feb 22	89
improved media for metal separation (C)		oil recovery continues (C) Jan 11	17	Pressure drop for slurry transport. S.H. Lin (graph, tables)	115
Apr 19	18	Suncor goal: desulfurize coke from oil sands	40	-Correction Nov 29	5
Batch pressure filtration—report (diagrams, tables, graphs, flow charts) (R)		(N)	49	Solvents  Extractive distillation saves energy. Ian	
July 26	*46	Suncor in situ oil-sands project will jump output (N)	23	Sucksmith (flowcharts, diagram, tables)	
Selecting batch pressure filters. Douglas N. Moir July 26	47	Tar-sands technique, GNC method will be tried out (N)Nov 1	36	U.S. patent is president and column 28	91
Designing batch pressure filters. Thane		Union Oil shale oil plant in Colorado: costs	30	U.S. patent is received on a solvent recovery process for extracting alcohols, ke-	
R. Brown July 26	58	climbing (N) Oct 18	23	tones, and other compounds from water	
Decanting without interface control. Geof- frey S. Mason (diagram) (P.N.)		Union Oil shale process to get a facelift (N)July 26	15	(C) Oct 4 Sound—The use of sound-level maps in	18
Sept 20	129	U.S. and Canada sign a heavy-oil research		acoustic design. G. Rosenhouse & others	
Gould process recovers battery lead via new technology at Vernon, Calif., plant (C)		pact (N)	43	(tables, diagrams)	72
Mar 8	17	Chemical spills: Mutant bacteria help in		South Africa Coal-based motor fuel complex goes on-	
Hydrocyclone balances. Steven J. Moore	149	cleaning up a California formaldehyde		stream (N)	27
(diagram, table) (P.N.) May 31 Israeli researchers hope to market new sepa-	149	spill—IT Enviroscience process (C) Aug 9	18	Reverse-osmosis water-purification system	31
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Brazil: oil-from-shale process plant con-	10	Predict fittings for piping systems. William		ment results announced (C) May 31 U.S. space shuttle Columbia will be carry-	20
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Amoco Canada Petroleum Ltd. and	19	Sizing orifices for flow of gases and vapors.	103	ASTM proposes a performance standard for alcohol plants (N) May 31	39
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Hope fades (C)	17	Steam-line sizing. Andrew Livingston (graph) (P.N.)	119	Metrics conversion plan is adopted for bulk chemicals and process instruments (C)	
ments offer too little, too late, for	17	Soda Ash—Alkali from soda ash may replace over 1.5 million tons of caustic soda (C)		Feb 8	18
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ing into doubt its standards-setting proce-		dolph Kueng & Peter Reimann (dia-		Halts work on nuclear facilities (N) Apr 5	51
dures (C)	17	grams) Apr 19	72	High-nitrogen fertilizer to be produced at	0.1
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uring PCBs (C)Feb 22	17	plants employing the Grillo process about	22	Terminals—Houston Ship Channel gets a new	10
Starch—Starch used as a slow-release herbi- cide agent (N)	55	to start up (N)Feb 8 Theoretical studies point to a new way to	23	\$20-million products terminal (C) Nov 1 Terrorism—Who would want to kidnap a	19
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Steam Conservation and Conservations		and control. Morris A. Vivona (flow dia-	01	DOE's "fast-flux" facility goes "formal" (N)	39
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Japanese steelmakers push slag recycling for energy and byproduct recovery (C)		Tanks		West German hydrogen-from-nuclear-heat	10
Mar 8	19	ASME pressure vessel code: Which division		project EVA/ADAM II: tests to begin	
Steel substitutes vie for auto market (N)		to choose? Alfred M. Smoren & John R.		(C) Feb 22	19
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Sulfur-cement, corrosion-resistant paving	10	specific-heat ratios for hydrocarbon		May 17	53
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EPA sets policy for keeping tabs on new	23	Dalie Sanisia of all of June 28	115	NASA's Landsat-4 satellite: "Eye in the sky" monitors hazardous waste (N)	
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EPA leaked Monsanto secret formula for	20	Letter Oct 18 Safety valve protects vacuum lines. V.N.	3	Will hazardous-waste victims get a super-	
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gram, tables) May 3	*81	sure drop. George F. Klein (charts, diagram, tables)	*81	July 12	39
Tubes—Heat-exchanger tube-to-tubesheet connections. Stanley Yokell (diagrams)		U.S. valve makers face a rosy future, with		Landfilling of ash is the way to go (N)Aug 9	23
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Rotary turbine will be tested for energy re- covery from process fluids (C). Nov 15	19	Fog formation in low-temperature condens-		Nuclear-waste disposal takes a big step for- ward. Barbara Starr (N) Nov 15	75
Westinghouse announces new combustion-	.,	ers. Lidia LoPinto (tables, diagrams) May 17	111	PCBs	
turbine blades, for use in synfuels con- sumption are ready (C)	19	Program performs vapor-liquid equilibrium		PCBs are not as dangerous as you may think, Monsanto's Gaffey tells EPA	
World's largest seawater-desalting project	19	calculations. Victor L. Rice (tables & diagrams)June 28	77	symposium (C) May 31	20
will use French pump/turbine sets (C)	10	Refrigeration systems for low-temperature	"	Sunohio's PCB destruction method is the	
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		(chart, diagram, table)	*83	"Valley of the Drums", Bullitt County,	
Ultrasonics		Marshall (diagram, tables, chart)		Ky.: Cleaning up the Valley of the Drums (N)	*25
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Sound stimulates catalytic reactions (N)	33	John R. Mase (graphs) Jan 11	133	Argonne method of treating low-level radio- active wastes to start up in Idaho (C)	
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Ultraviolet—Ultraviolet light takes on CPI	10			EPA-Montana Tech will test advanced	17
role. Robert W. Legan (flow diagram, ta-	+00	W		methods for treating metal-finishing	10
bles) Jan 25 Underwater Mining	*95			wastes (C) Sept 6 Gulf Coast hazardous-waste facility will	19
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ahead to pave the way for mining (C)		EPA forms a taskforce to expedite the	٦, ا	Philip M. Kohn (N) Aug 23	*55
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U.S. Dept. of Energy		spills July 26	*35	destruction (C) Nov 15	20
Edwards expected to leave DOE (C) Nov 15	20	EPA adds 45 sites to its list of abandoned dumps for Superfund cleanup (C)		Unused coke plant will become a munici- pal-waste pyrolyzer (C)	17
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National Laboratory report progress (N)	23	liquid hazardous wastes raises a storm	20	Waste Utilization Sept 20	17
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Uranium needed for world energy growth	23	continue without Stablex Corp (C) Feb 8	19	wastes to methane in new "Bioenergy" process (C)	19
(N) Oct 18	25	Hazardous wastes stir up trouble for EPA	19	Barite unit: USBM's BOM lab develops	19
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